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2 **Amendments to the Specification**

3 The following paragraphs have been canceled in this paper:

4 0004-0009, 0011-0015, 0018-0044, and 0053-0073, and the following paragraphs are
5 amended as indicated below.

6 Replace original paragraph 0010 with amended paragraph 0010 below.

7 **[0010]** A medium voltage controller for electrical equipment, such as motors,
8 transformers, reactors, and capacitors, is provided. A load discharge device (LDA) is
9 included for grounding the load before the contactor can be removed from the
10 controller. The LDA has a scissors-type closing mechanism, which, when actuated
11 after being charged, causes a bar to contact each of the load conductors.

12 Replace original paragraph 0016 with amended paragraph 0016 below.

13 **[0016]** The above-mentioned features of the invention will become more clearly
14 understood from the following detailed description of the invention read together with
15 the drawings in which:

16 Figure 1 is a perspective view of a group of five controllers;

17 Figure 2 is a schematic diagram of a controller;

18 ~~Figure 3 is a perspective view of a motor controller with one side panel~~
19 ~~removed;~~

20 ~~Figure 4A is a perspective view of a cut away of a rear panel;~~

21 ~~Figure 4B is a cut away top view of the rear panel;~~

22 ~~Figure 5 is a perspective view of an exhaust vent on the top panel of the~~
23 ~~cabinet;~~

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25 Figure 6 is a partial view of two mounting dimples;

26 Figure 7 is a side section view of a dimple in a dimple assembly;

27 Figure 8A is a partial perspective view of a front door and latching plate;

28 Figure 8B is a partial plan view of a door latch;

29 Figure 8C is a partial plan view of a door hinge;

30 Figure 9 is a perspective view of a terminal and a cable;

31 Figure 10 is a perspective view of a terminal swaged to a cable;

32 Figure 11 is a perspective view of a contact finger and a terminal stab;

33 Figure 12 is a side view of a contact finger and stab;

34 Figure 13A is a right side perspective view of the instrument compartment with
35 the door open and the instrument panel extended and swung out;

36 Figure 13B is a top plan view of the instrument compartment as illustrated in
37 Figure 13A;

38 Figure 14 is a left side perspective view of the instrument compartment with
39 the door open and the instrument panel extended;

40 Figure 15 is a perspective view of the contactor truck receding partially pulled
41 out from its fully inserted position;

42 Figure 16 is a side view of the contactor truck in the position as illustrated in
43 Figure 15;

44 Figure 17 is a plan view of the contactor truck in the fully inserted position;

45 Figure 183A is a perspective view of a load discharge device;

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47 Figure 183B is a plan view of a portion of the load discharge device, showing
48 the device in the charged position;

49 Figure 183C is a plan view of a portion of the load discharge device, showing
50 the device in the earthed position;

51 Figure 183D is a plan view of the load discharge device scissors-type linkage;

52 Figure 183E illustrates a terminal lug for the load discharge device;

53 Figure 19 illustrates the disconnect switch and the fuses;

54 Figure 20A illustrates a two fuse holder;

55 Figure 20B illustrates a three fuse holder assembly;

56 Figure 21 illustrates the housing of the disconnect switch and a switch
57 illuminator;

58 Figure 22 illustrates the internals of the disconnect switch in the open
59 position;

60 Figure 23 illustrates a cross section view of the internals of the disconnect
61 switch;

62 Figure 24 illustrates a switch illuminator for illuminating the internals of the
63 disconnect switch;

64 Figure 25 illustrates a simple schematic diagram for the switch illuminator;

65 Figure 26 illustrates a schematic of a low power current transformer;

66 Figure 27 illustrates a block diagram of an internal temperature monitoring
67 system; and

68 Figure 28 illustrates the wave forms for the source and reflected optical signals.

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70 Replace original paragraph 0045 with amended paragraph 0045 below.

71 [0045] Figure 183A illustrates a load discharge device (LDA), or load-cable
72 earthing switch, 1810, which is an apparatus for grounding the load-side conductors
73 when the contactor is in the open position. The LDA 1810 is illustrated schematically
74 as a switch 214 in Figure 2. The LDA 1810 illustrated in Figure 18A is in the
75 unearthing position, that is, the earthing bar 1806 is positioned away from the
76 terminal lugs 1802 and the springs (only one spring 1844 is illustrated, the other is
77 hidden by the insulating tube 1842) are charged, or compressed. The illustrated
78 embodiments of the LDA 1810 are low-profile devices that occupy little more space
79 than the load-side terminals. The LDA 1810 includes a molded base 1872 that
80 secures many of the individual components. In one embodiment, the support plate
81 1874 is attached to the molded base 1872. In another embodiment, the support
82 plate 1874 and the molded base 1872 form an integral piece.

83 Replace original paragraph 0046 with amended paragraph 0046 below.

84 [0046] The LDA operator 1815 has a racking connector 1812, which engages a
85 racking screw 1814, and flag windows 1817 and 1819, which indicate the earthing
86 switch 1810 position and LDA 1810 charged status. When tripped, the earthing bar
87 1806 is pushed by the springs 1844 against the terminal lugs 1802, causing the
88 terminal lugs 1802 to be shorted and earthed through the earthing connection 1804.
89 For illustration purposes, three different sizes of terminal lugs 1802A, 1802B, and
90 1802C are shown in Figure 183A. Two lugs 1802A and 1802C each have a small
91 opening 1803A and 1803C for receiving a conductor having a low or medium current
92 rating. The center lug 1802B has a large opening 1803B for receiving a large
93 conductor with a high current carrying capacity. The lugs 1802 are swaged to the
94 conductors as illustrated in Figure 10.

95 Replace original paragraph 0047 with amended paragraph 0047 below.

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98 [0047] Figures 183B and 183C illustrate the position of the earthing bar **1806**
99 with respect to the lugs **1802**. In Figure 183B, the earthing bar **1806** is in the
100 ungrounded position and the LDA **1810** is charged and ready to earth the load-side
101 conductors. In Figure 183C, the earthing bar **1806** is in the earthing position; that is,
102 the earthing bar **1806** is in contact with the grounding notch **1854** (see Figure 183E)
103 on each of the lugs **1802**. The earthing bar **1806** engages a first end of the springs
104 **1844** and has a grounding connector **1804** for connecting the earthing bar **1806** to
105 earth. The second end of the springs **1844** rests against the base **1872**. The springs
106 **1844** provide the motive force for earthing by quickly forcing the earthing bar **1806**
107 against the lugs **1802** when the LDA **1810** is tripped. In the embodiment illustrated
108 in Figures 183A, 183B, and 183C, the earthing bar **1806** is a plate that contacts the
109 springs **1844** and the lugs **1802**. In another embodiment, illustrated in Figure 183D,
110 the earthing bar **1806** is a round bar that contacts the springs **1844** and the lugs
111 **1802**.

112 Replace original paragraph 0048 with amended paragraph 0048 below.

113 [0048] Figure 183D illustrates the position of the actuating mechanism and the
114 charging mechanism on the support plate **1874** when the LDA **1810** is in the earthed
115 position. As illustrated in Figure 183A, when the LDA **1810** is charged, the scissors-
116 type linkage first member **1832** and second member **1828** are aligned in an almost-
117 straight-line alignment and have a common first pivot **1860** constrained in a slot
118 **1862** in a third member **1830**. Because the linkage members **1832** and **1828** are
119 aligned with the pivot **1860** below the straight-line alignment position and the pivot
120 **1860** is restrained from moving lower vertically by a stop **1864** on the backing plate
121 **1874**, the linkage members **1832** and **1828** are fixed in position by the springs **1844**
122 and hold the linkage in a stable over-toggle position. The LDA **1810** is tripped by
123 rotating the screw **1814** which rotates the plate **1816** about the hex nut pivot **1831**.
124 The counter-clockwise rotation of plate **1816** forces the vertical member **1830**
125 upwards pushing the pivot **1860** vertically. This rotates the member **1832** out of the
126 almost-straight-line alignment (toggle) with the member **1828**. Once the pivot **1860**

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128 is above the straight-line alignment position, the members 1832 and 1828 no longer
129 oppose the springs 1844. The unrestrained springs 1844 force the rails 1822A and
130 1822B and the connecting member 1826 to travel toward the vertical member 1830,
131 causing members 1832 and 1828 to fold around the pivot 1860, such as scissors do
132 when closing.

133 Replace original paragraph 0052 with amended paragraph 0052 below.

134 [0052] Figure 483E illustrates terminal lug 1802A, which has a barrel 1852, a
135 lug pad 1856, and a grounding bevel 1854. The grounding bevel 1854 forms a notch
136 with the molded base 1872 when the lug 1802A is adjacent the molded base 1872.
137 The lug pad 1856 has a flat surface for connecting the load-side cable terminal lug
138 (not illustrated). The lug pad 1856 has two openings 1858A and 1858B, through
139 which mounting fasteners pass and secure the load-side cable terminal connection.
140 The lug 1802A has an opening 1803A that passes through the barrel 1852 and
141 receives a cable conductor. ~~The lug 1802A can be swaged to the conductor in a~~
142 ~~maner as illustrated in Figure 10. These skilled in the art will recognize that other~~
143 ~~means for connecting the conductor to the lug 1802A can be employed without~~
144 ~~departing from the spirit and scope of the present invention. The lug 1802A has a~~
145 tang 1853 that protrudes perpendicular to the barrel 1852 and is received by a slot
146 in the lug holder 1805. The tang 1853 secures the lug 1802A and prevents the lug
147 1802A from being displaced longitudinally when the earthing bar 1806 strikes the
148 grounding bevel 1854. The opening 1858C receives a pin, fastener, or other
149 positioning member that secures the lug 1802A and prevents the lug 1802A from
150 being displaced orthogonally from the support plate 1874 when the earthing bar
151 1806 strikes the grounding bevel 1854.